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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,029	12/28/2001	Konstantin Volodarsky	042496 0269289	3769

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EXAMINER

NICOLAS, WESLEY A

ART UNIT

PAPER NUMBER

1742

DATE MAILED: 07/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

10/041,029

Applicant(s)

VOLODARSKY ET AL.

Examiner

Wesley A. Nicolas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 65-72 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 65-72 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 65-72 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 65 and 68 recites the limitation "the chamber" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claims 66-67 and 69-72 are rejected because they are dependent from rejected claims 65 and 68.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 65-70 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamikawa et al. (EP 0 855 736 A2).

Claim 65 is rejected because Kamikawa et al. teach a method of carrying out at least two processing steps on a workpiece, the method comprising the steps of:

- lowering the workpiece into a lower section of the chamber (Figs. 20 and 21);
- carrying out a first processing step on the workpiece in the lower section of the chamber (Fig. 22 where "W" is in solution);
- raising the workpiece from the lower section to an upper section of the chamber (Fig. 24, "W" in upper chamber 42);
- positioning a movable guard between the lower section and the upper section (Fig. 25, numeral 72 separating upper chamber 42 from lower chamber 41); and
- carrying out a second processing step on the workpiece in the upper section (Fig. 26, gas coming out of nozzles 85 and 86).

Claims 66 and 69 are rejected because Kamikawa et al. teach that the first processing step comprises modifying a surface on the workpiece (*i.e.* cleaning) (col. 11, lines 5-45).

Claims 67 and 70 are rejected because Kamikawa et al. teach that the second processing step comprises drying a surface of the workpiece (cols. 13-18 which specify drying of the wafer).

Claim 68 is rejected because Kamikawa et al. teach a method of carrying out at least two processing steps on a workpiece, the method comprises the steps of:

- carrying out a second processing step on the workpiece in an upper section after positioning the movable guard between the upper section and the lower section of the chamber (Fig. 25, numeral 72 separating upper chamber 42 from lower chamber 41 and Fig. 26, gas coming out of nozzles 85 and 86);

- repositioning the movable guard such that the workpiece can be lowered into the lower section of the chamber (Fig. 19, movable guard 72 out of the way);
- lowering the workpiece into the lower section of the chamber (Fig. 29, workpiece "W" in lower chamber 41);
- carrying out a first processing step on the workpiece in the lower section of the chamber (Fig. 22, workpiece "W" in cleaning bath);

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 71-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamikawa et al. (EP 0 855 736 A2), and further in view of Schild et al. (5,569,330).

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Kamikawa et al. are as applied, argued, and disclosed above and incorporated herein and further teach the application of heated gas (col. 14, line 48) but fail to specifically teach providing gas selected from the group consisting of O₂, CF₄, Cl₂, and NH₂, or the specific heating of the workpiece.

Schild et al. teach the application of ozone (O₃) to the workpiece (col. 4, lines 56-61 and col. 5, lines 51-53).

Claim 71 is rejected because it would have been obvious and within the ordinary skill in the art at the time the invention was made to have modified the Kamikawa et al. invention to use a gas such as ozone or oxygen as taught by Schild et al. because Schild et al. teach that application of ozone allows a chemical oxide to grow on the substrate surface which provides a hydrophilic surface on the substrate (col. 4, lines 56-61). Although Schild et al. does not specifically teach application of oxygen (O₂), one of ordinary skill in the art would reasonably expect that oxygen would be present given the inherent instability of ozone and its likelihood of disassociation.

Although neither Kamakawa et al. nor Schild et al. disclose the heating of the wafer during application of gas, claim 72 is rejected because wafer heating would have been an inherent property/result given the application of a heated gas to the chamber as taught by Kamikawa et al. (col. 14, line 48).

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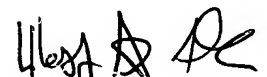
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley Nicolas whose telephone number is (703)305-0082. The examiner can normally be reached on Mon.-Thurs. from 7am to 5pm.

The Supervisory Primary Examiner for this Art Unit is Roy King whose telephone number is (703) 308-1146.

The fax number for this Group is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.


Wesley A. Nicolas

July 11, 2003